

Management and Evaluation of the Importance of Porous Media in Biomedical Engineering as Associated with Magnetic Resonance Imaging Besides Drug Delivery

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Abstract : Studies related to magnetic resonance imaging (MRI) and drug delivery are reviewed in this study to demonstrate the role of transport theory in porous media in facilitating advances in biomedical applications. Diffusion processes are believed to be important in many therapeutic modalities such as: B. Delivery of drugs to the brain. We analyse the progress in the development of diffusion equations using the local volume average method and the evaluation of applications related to diffusion equations. Torsion and porosity have significant effects on diffusive transport. In this study, various relevant models of torsion are presented and mathematical modeling of drug release from biodegradable delivery systems is analysed. In this study, a new model of drug release kinetics from porous biodegradable polymeric microspheres under bulk and surface erosion of the polymer matrix is presented. Solute drug diffusion, drug dissolution from the solid phase, and polymer matrix erosion have been found to play a central role in controlling the overall drug release process. This work paves the way for MRI and drug delivery researchers to develop comprehensive models based on porous media theory that use fewer assumptions compared to other approaches.

Keywords : MRI, porous media, drug delivery, biomedical applications

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